

What is claimed is:

1. A data-empowered test program architecture comprising:
  - a test executive software module;
  - a test framework software module having externally configurable generic software
- 5 code and being coupled for interaction with the test executive software module;
  - a plurality of software components in a software components module coupled for
- interaction with the test framework software module and structured for outputting one or
- more test reports; and
- one or more external control files coupled for configuring the generic software code
- 10 of the test framework software module.
2. The architecture of claim 1 wherein the test framework software module further
- comprises a hardware abstraction interface.
3. The architecture of claim 1, further comprising an external reuse library having one or
- more test descriptions of common signal types and being coupled for generating the control
- 15 files.
4. The architecture of claim 1 wherein the software components module further
- comprises one or more software components for interfacing between the one or more external
- control files and one or more of the test executive software module and the test framework
- software module.
- 20 5. The architecture of claim 1 wherein the software components module further
- comprises a pass/fail analyzer and report generator having one or more modes of pass/fail
- analysis and test reporting.
6. A data-empowered test program architecture comprising:
  - one or more external control files including an external control file having a list of test
- 25 identification numbers;
- a test executive module having an execution engine coupled to receive one or more
- test identification numbers from the list of test identification numbers for generating as a
- function of the one or more test identification numbers a plurality of test actions to be
- performed on a unit-under-test;

a test framework module accessing the plurality of test actions and associated test hardware resources as a function of the test identification numbers, the test framework module:

- i) determining an identification of one of the test hardware resources associated with a current one of the test action,
- ii) retrieving the identification of the associated test hardware resource,
- iii) determining a signal type corresponding to the retrieved test hardware resource identification,
- iv) accessing as a function of the signal type one of the external control files having test hardware resource card-type information, and
- v) determining the test hardware resource card-type information as a function of a card-type identifier.

7. The architecture of claim 6 wherein the test hardware resource card-type information includes routing data and parameters for interfacing with an external hardware driver.
- 15 8. The architecture of claim 6, further comprising an external reuse library having a plurality of test descriptions corresponding to a plurality of different test signal types.
9. The architecture of claim 6, further comprising a plurality of software components for interfacing between the external control files and one or more of the test executive module and the test framework module.
- 20 10. The architecture of claim 9 wherein the plurality of software components further comprises one or more modes of pass/fail analysis and test reporting.
11. A data-empowered test program architecture comprising:
  - means for generating a plurality of test actions to be performed on a unit-under-test;
  - means for accessing the plurality of the test actions;
  - 25 means for identifying a test hardware resources associated with a current one of the test action; and
  - means for interfacing with an external hardware driver as a function of identifying the test hardware resources associated with the current one of the test action.

12. The architecture of claim wherein the means for interfacing with an external hardware driver further comprises:

means for determining a signal type corresponding to the identified test hardware resource;

5 means for accessing as a function of the signal type an external control file having test hardware resource card-type information contained therein; and

means for determining the test hardware resource card-type information as a function of a card-type identifier.

13. The architecture of claim 11 wherein the means for generating a plurality of test actions further comprises means for generating the plurality of test actions as a function of  
10 one or more test identification numbers received from a list of test identification numbers.

14. The architecture of claim 11 wherein the means for generating a plurality of test actions to be performed on a unit-under-test further comprises means for generating a plurality of control files for configuring software code for generating the plurality of test  
15 actions.

15. The architecture of claim 14 wherein the means for generating a plurality of control files further comprises means for generating one or more of the control files as a function of one or more test descriptions of signal types contained in an external reuse library.

16. The architecture of claim 11, further comprising means for performing pass/fail  
20 analysis.

17. The architecture of claim 16, further comprising means for generating one or more test reports.

18. A computer program product comprising:  
a computer usable medium having computer-readable code embodied therein for  
25 configuring a computer, the computer program product comprising:  
computer-readable code configured to cause a computer to generate a plurality of test actions;  
computer-readable code configured to cause the computer to access the plurality of the test actions;

computer-readable code configured to cause the computer to identify a test hardware resource associated with a current one of the test action; and

computer-readable code configured to cause the computer to interface with an external hardware driver as a function of the test hardware resources associated with the  
5 current one of the test actions.

19. The computer product of claim 18 wherein the computer-readable code configured to cause a computer to interface with an external hardware driver further comprises computer-readable code configured to cause a computer to:

10 determine a signal type corresponding to the identified test hardware resource;  
as a function of the signal type, access an external control file having test hardware resource card-type information contained therein; and  
as a function of a card-type identifier, determine the test hardware resource card-type information.

20. The computer product of claim 18 wherein the computer-readable code configured to  
15 cause a computer to generate a plurality of test actions further comprises computer-readable code configured to cause a computer to receive from a list of test identification numbers one or more test identification numbers, and to generate the plurality of test actions as a function of the received test identification number.

21. The computer product of claim 18, further comprising computer-readable code  
20 configured to cause a computer to perform a pass/fail analysis.

22. The computer product of claim 21, further comprising computer-readable code configured to cause a computer to generate one or more test reports.

23. The computer product of claim 18, further comprising computer-readable code stored  
25 in one or more software components and configured to cause a computer to interface between the computer-readable code configured to cause a computer to generate a plurality of test actions and the computer-readable code configured to cause a computer to access the plurality of the test actions.